

Special Issue on
**Advances in Functional Genomics and its Potential
Application for Food, Nutrition, and Energy Security**

CALL FOR PAPERS

Food, nutrition, energy, and climate concerns are among the most researched priorities of the 21st century. Global demand for food is projected to increase 60% by 2050 and may go up further due to increasing utilization of crops as a feedstock in the industry. According to the Intergovernmental Panel on Climate Change (IPCC), yield from the agriculture sector is predicted to decline by 2% per decade due to the negative impact of global warming. Therefore, we thrive to find novel solutions to face the many global challenges related to sustainable food, nutrient, and energy production.

Recent advances in biotechnology, especially in functional genomics, facilitate rational engineering approaches for increased food quality, while also aiding in the discovery of sustainable solutions for nutrition and energy related issues. Functional genomics tools generate more affordable, efficient, and environmentally viable solutions for industry and agriculture. For instance, biotech crops resistant to pests and weed have increased crop productivity, enhanced soil health, and improved water quality. Additionally, algae are used as a source for cleaner bioenergy and health-promoting food additives. Despite significant progress in crop-functional genomics, farmers, especially those in developing countries, lack access to tools for fighting abiotic and biotic stresses. Achieving higher crop productivity from the poor quality soil while minimizing fertilizer utilization still remains a major challenge in agriculture. Similarly, enhancing genetic potential for photosynthetic efficiency is among the grandest challenges of the agriculture and bioenergy industries.

This special issue on sustainable biotechnological solutions for food, nutrition, and energy security will contain contributions from leading experts in the field of food, nutrition, and energy research on photosynthetic macro- and microorganisms like plants and algae. We believe this special issue would contribute towards addressing some of the key challenges of science and help in setting a direction for the future. Authors are encouraged to submit manuscripts describing the comprehensive use of genetics and genomics tools to address the challenges of sustainable food, nutrition, and energy security.

Potential topics include but are not limited to the following:

- ▶ Plant and algae functional genomics, proteomics, and metabolomics
- ▶ Basic and translational research on food, nutrition, and energy research
- ▶ Novel genomics and bioinformatics tools and methods for plant and algae genetic improvement
- ▶ Metabolic engineering for enhancing primary and specialized metabolite production
- ▶ Abiotic and biotic stress tolerance functional genomics
- ▶ Genomics and genetics strategies for improved crop yield and product quality

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/ijg/sbsfn/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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